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University of Applied Sciences

Master's Degree Programme in International Business Management

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DEVELOPING PROCUREMENT PROCESS, CASE POLICE TECHNICAL CENTRE

Master's Thesis 2009

## ABSTRACT

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Master's Degree Programme in International Business Management

KESTI, PEKKA	Developing procurement process, case Police Technical Centre
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Supervisor (Kyamk)	Markku Nikkanen, Principal lecturer
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The purpose of the thesis is to describe the current state of procurement of the Police Technical Centre (later PTC) and to find ways to develop then controllability and management of procurement operations.

This study tries to seek answers to following questions: Firstly, can the PTC's procurement be improved by means of Efficient Consumer Response (ECR) - theory, especially Category management?

Secondly, one PTC's product group, Forensic products, will be taken into deeper investigation. The purpose is to see what benefits Efficient Consumer Response (ECR) could offer to that product group and to that product group's target settings. Quantitative data will also be needed for a basis when the police purchasing and using Forensic products will be interviewed.

Thirdly, the purpose is to see how Demand management and forecasting - theories could improve the controllability and management of PTC's procurement process.

As the results of the thesis, ERP and category management give tools for PTC's procurement and demand management and could give frames for the forensic units' purchase planning too. That might happen through implementing category management together with the customers. The deeper customer oriented method could change the widely fragmented Forensic product purchases more into PTC direction.

# TIIVISTELMÄ

## KYMENLAAKSON AMMATTIKORKEAKOULU

### Liiketalouden koulutusohjelma

KESTI, PEKKA	Poliisin Tekniikkakeskuksen hankintatoimen kehittäminen
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Tämän työn tarkoituksena oli kuvata Poliisin tekniikkakeskuksen (jatkossa PTK) hankintatoimen nykytilaa ja etsiä keinoja hankintatoimen kehittämiseksi ja hankintatoimen hallittavuuden parantamiseksi.

Tämä tutkimus etsi vastauksia seuraaviin kysymyksiin kuten voidaanko PTK:n hankintatoimintaa parantaa Asiakaslähtöinen kaupan arvoketju-teoriaa ja erityisesti tuon teorian yhden osa-alueen, tuoteryhmähallinnan, keinoin.

Yksi PTK:n tuoteryhmä, rikostutkimusvälineet, otettiin tarkemmaksi tutkimuskohteeksi. Tarkoitus oli tutkia, mitä etuja (jos mitään) Asiakaslähtöinen kaupan arvoketju-teoria voi tuoda rikostutkimusvälineet-tuoteryhmän hallintaan ja tavoiteasetantaan. Tietojärjestelmän antamaa tietoa tarvittiin myös pohjaksi, kun kyseisiä tuotteita ostavia ja käyttäviä rikosteknisiä yksiköitä haastateltiin.

Kysynnän hallinta – teoriaa haluttiin hyödyntää poliisin laajalla rintamalla tapahtuvan ostotoiminnan ymmärtämiseksi, ja että miten sitä kautta PTK:n hankintatoimintaa voitaisiin paremmin hallita ja kehittää ja miten poliisin ostojen ennustettavuutta voitaisiin parantaa ja sitä kautta edelleen tukea PTK:n hankintatoimintaa.

Työn tuloksena voidaan sanoa, että valitut teoriat antavat monipuoliset käytännön työkalut PTK:n hankintatoimen kehittämiseksi ja hallittavuuden parantamiseksi.

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# 1 INTRODUCTION

## 1.1 Background

The new millennium features an increasing numbers of world-class competitors, domestic or international, that are forcing organizations to improve their internal processes to stay competitive. Sophisticated customers, both industrial and consumer, no longer talk about price increases. They demand price reductions! Information that is available over the Internet will continue to alter the balance of power between buyers and sellers. An abundance of competitors and choices have conditioned customers to want higher quality, faster delivery, and products and services tailored to their individual needs at a lower total cost. If a company cannot meet these requirements, the customer will find someone who is more accommodating. (Monzcka, Handfield, Giunipero, Patterson 2009, 5.)

Several above mentioned factors are creating an emphasis on procurement, purchasing and supply chain management. Firstly, the costs and availability of information resources between entities in the supply chain allows easy linkages that eliminate time delays in the network. Secondly, the level of competition in both domestic and international markets requires organizations to be fast, agile, and flexible. Thirdly, customer expectations and requirements are becoming more demanding. And finally, the ability of an organization's supply chain to react rapidly to major disruptions in both supply and downstream product or services will lessen the impact of lost sales. (Monzcka, Handfield, Giunipero, Patterson 2009, 6.)

Purchasing is a functional group (i.e. a formal entity on the organizational chart) as well as a functional activity (i.e. buying goods and services). The purchasing group performs many activities to ensure it delivers maximum value to the organization. Such as supplier identification and selection, buying, negotiation and contracting, supply market search, supplier measurement and improvement, purchasing systems development, demand forecasting and knowing customers' needs and wishes. Purchasing has been referred to as doing "the five rights": getting the right quality, in the right quantity, at the right time, for the right price, from the right source. In

above mentioned text we will interchange the terms “purchasing and procurement”. (Monzcka, Handfield, Giunipero, Patterson 2009, 8.)

There in Sony-company's internet sites is an interesting example of Sony's procurement activities based on two main principles (Van Weele 2005, 91.):

First principle is to meet the expectations of Sony's customers worldwide. Like PTC needs to meet the expectations of the Finnish Police in the whole Finland. Customers expect Sony product and services to offer a high level of value. They also expect Sony to be a good corporate citizen through its operations. Sony's procurement activities are no exception in meeting these expectations. PTC must also win the customers' respect with added value together with products and services. And at the same time PTC must be a good corporate citizen, according to public procurement law.

The other Sony's procurement principle is relationships with suppliers. Sony procures parts and materials for its products from numerous suppliers worldwide. Sony's worldwide procurement activities require smooth relationship with suppliers based on mutual trust and cooperation. PTC has about active 225 suppliers, mainly in Finland but dozens also in other countries. Working without mutual trust and cooperation with suppliers would make PTC's life impossible.

Sony according to Van Weele (2005, 91) believes that both Sony and its suppliers need to be good partners: in order to provide high appealing products that satisfy customers, and to be good corporate citizens through such activities as green procurement. PTC acts like Sony in that respect.

Strathclyde Business School (Procurement Management Postgraduate program 2009) speaks about procurement and other terms related to that. According to that program procurement is one of today's fastest growing management disciplines, in

terms of both managerial activity and strategic importance. Procurement and the management of the entire supply chain have emerged from being sets of functional skills to being recognized as a driving corporate business philosophy - a profit creation centre, rather than simply a cost saving function.

In managerial contexts, the concepts “Procurement”, “Logistics” and “Supply Chain Management” are very closely related to each other.

## 1.2 The procurement in Police Technical Centre

Procurement management is a challenging task in a company like Police Technical Centre (later PTC). First, PTC must follow public procurement law, the instructions defined by the Police Department (ministry of the Interior) and PTC’s own internal guidelines. Second, PTC’s procurement covers several different product groups and products for its main customer, the Finnish Police. Third, the Finnish Police operates and purchases with annual budget money. Fourth, when the Finnish Police buying things, the purchases are indirect ones, which means typically, widely fragmented purchases through the police organization, and that makes it difficult to collect purchase information (which products, when and how much) for PTC’s procurement management and demand forecasting because there is no law for the police to buy material from PTC (except police uniforms and service guns).

The Police Department (ministry of the Interior) gave a procurement order in October 2008. The order gives guidelines for the Police’s purchases. According to that order the two main purchase addresses should be Hansel Oy (for office papers etc.) and PTC (for police equipment). That gives PTC a lot in the long run but requires a lot from PTC as well.

To support procurement management basic information is needed. In PTC’s case the information will be collected from the information system (ERP) called Jeeves. ERP stands for Enterprise Resource Planning. ERP is a way to integrate the data and processes of an organization into one single system.



Jeeves ERP can handle purchases, sales, inventories and e-commerce. In this thesis, from several PTC's product groups, the third biggest one, Forensic products will be under deeper investigation.

### 1.3 Theoretical view

Efficient Consumer Response (ECR) - the theory has been developed for retail markets will be utilized and estimated. ECR aims at a consumer-driven system, where distributors and suppliers work together in order to maximize consumer satisfaction and minimize costs. The target in this thesis is to find out, how efficient answer ECR will give to PTC's demand forecasting and procure management.

Indirect (fragmented) purchases are a challenge for public companies. PTC as the Finnish Police's In-house procurement unit meets that challenge every day. Based on gathered information (information system and interviews) there is a chance to turn the fragmented purchase flow to one direction.

Concerning PTC's product groups, products and inventory management there are certain target settings. One essential thing for PTC's business is demand forecasting. That demand forecasting theory will be weighted against one "essential" product group, Forensic products, in order to see, what can be done in order to improve that product group's procurement management. The received answers can then be utilized for other products too.

### 1.4 Research methods

As a research method will be used both quantitative and qualitative method.

- The quantitative part will consist of purchased and sold Forensic products information gathered from PTC's ERP information system. Quantitative information is needed for a basis when the police purchasing and using forensics products will be interviewed.

- The qualitative part will consist of interviews. *In the qualitative method the research target will be often described as all-inclusive as possible. Often the facts will be found and uncovered: Certain defaults will be seen as true.* (Hirsjärvi, Remes & Sajavaara 1997, 126; 152.)

As a theoretical material will be used procurement and logistic literature. The purpose of the theoretical part is to find tools for developing the present procurement. Public procurement legislation will also be present. The inventory management theories will be handled only in necessary parts in order to understand this study, the focus is improving the procurement of certain product group (Forensic products) through better procurement forecasting and planning.

## 2 RESEARCH OBJECTIVES

The purpose of this thesis is to describe the current state of procurement of Police Technical Centre (later PTC) and to find ways to develop then controllability and management of procurement operations.

This study tries to seek answers to following questions:

Can the PTC's procurement be improved by means of *Efficient Consumer Response (ECR)* - theory, especially *Category management*?

What benefits (if any) Efficient Consumer Response (ECR) could offer to that product group and to that product group's target settings?

One PTC's product group, Forensic products, will be taken into deeper investigation. The information system will give data from those products' purchases and sales and that data will be used for analysing those products' procurement process. Based on that analysis the purpose is to see what benefits (if any) Efficient Consumer Response (ECR) could offer to that product group and to that product group's target settings. Quantitative (information system) data is also needed for a basis when the police purchasing and using Forensic products will be interviewed.

Can the demand of Forensic products be forecasted?

*Demand management* - The purpose is to understand better those widely fragmented purchases of the Finnish Police and thus to improve the controllability of PTC's procurement management and to find out if the demand can be forecasted and if then the forecasting helps in that task.

Is there is any common purchase logic and what are the possible limitations?

The purpose is to find out and to understand the common purchase logic of the police.

What are the rationales to buy from PTC? / What are the rationales to buy from other sources?

The purpose of demand and purchase descriptions is to understand better the buying behaviour of police.

### 3 PROCUREMENT

#### 3.1 Definitions

This chapter describes both procurement and stocking definitions. The definitions widen the background that PTC procurement needs to take into account when serving the consumers in profitable way.

Figure 1 schematically illustrates the main activities within the purchasing function. It shows that these activities are closely interrelated. This picture is referred to as the purchasing process model. Material activities like materials scheduling, inventory management, incoming inspection and quality control are not included but, in order to be effective, purchasing operations should be closely linked and interrelated to the materials activities. (Van Weele 2005, 13.)

The term *procurement* is the broadest term. It includes all activities required in order to get the product from the supplier to its final destination.

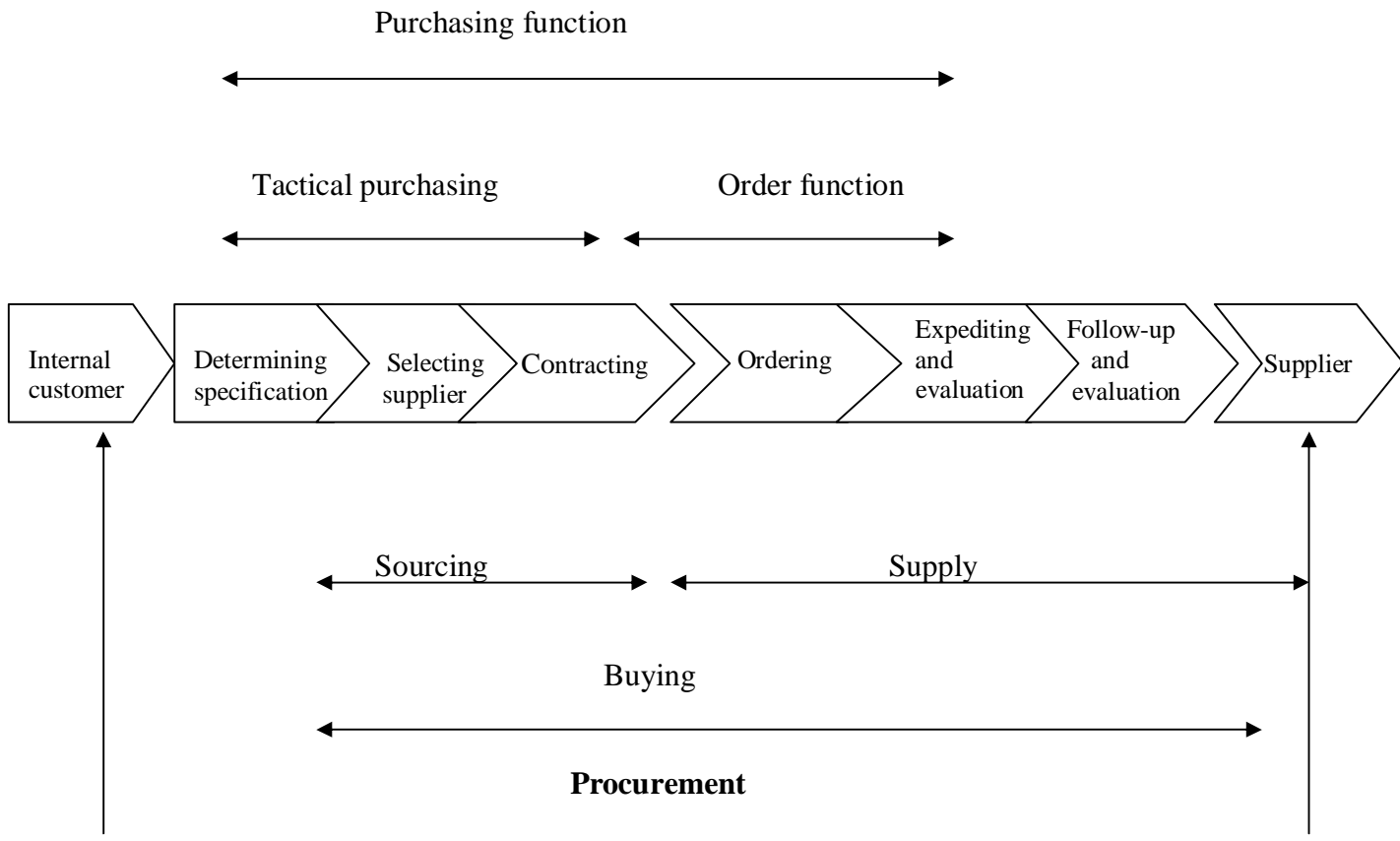


Figure 1. Purchasing process model and some related concepts (Van Weele 2005, 13.)

The term *ordering* refers to conditions. Furthermore, like Van Weele (2005, 14) says, the term ordering will be used when purchased orders are placed directly, without questioning the supplier's conditions and without sufficient supplier market testing. Call-off orders fall into this category as telephone orders for products bought from a supplier catalogue. Ordering is considered to be a part of the purchasing process.

According to Iloranta & Pajunen-Muhonen (2008, 59) the definition *purchasing* covers all activities for which the company receives an invoice from outside parties. Hence the playing ground of purchasing includes inter company business, counter trade arrangements, hiring of temporary persons from outside agencies, contracting for advertising etc.

Van Weele (2005, 14) writes that purchasing can be distinguished from buying and ordering in two ways: while specifications may be a given in the situation of

ordering and buying, these are challenged when it comes to purchasing. In that case discussion may start about the degree to which the specifications are really fit for the purpose. Features which are not necessary, for meeting the function which the product needs to fulfil are skipped. This often leads to a situation where an (expensive) supplier branded product is replaced by an identical product from a less known supplier. Another difference is that purchasing relates to finding the best possible supplier, based upon a broad supplier market definition.

According to Van Weele (2005, 14) the term *procurement* is a somewhat broader term. Also for PTC the procurement includes all activities required in order to get the product from the supplier to its final destination. It encompasses the purchasing function, stores, traffic and transportation, incoming inspection, and quality control and assurance. Some firms also consider salvage and environmental issues, as they are related to materials, as a part of procurement. E.g. PTC takes back the environmentally otherwise complicated products such as personal vests, uniforms and training gas. This task has become more and more important for PTC, together with the increasing impact of environmental issues.

*Material management* combines related functions such as purchasing, inventory control, receiving, and stores. The material concept and the functions fall under the material umbrella. The various functions under that umbrella include material planning, control, inventory planning and control, materials and procurement research, purchasing, incoming traffic, receiving, incoming quality control, stores, materials movement, and scrap and surplus disposal. (Monzcka, Handfield, Giunipero, Patterson 2009, 24.)

*Bottom-line thinking* according to Van Weele (2005, 301) tells that the primary reason for buying in trade companies is to sell at a profitable margin. No matter what, it must be possible to sell that which is bought. Business policy is primarily aimed at improving turnover and margin, and at reducing working capital. The main objective is to realize the largest possible difference between sales price and total cost (net margin). Logistics policy is aimed at keeping products constantly in motion in order to avoid stock situations which would take up unnecessary working

capital. Sales, margin and logistics costs information are, therefore, basic information to sound purchasing decision making.

There are many definitions about stock or inventory turnover. According to Dictionary of Marketing (Dictionary of Marketing 2009) *stock turnover* tells the rapidity with which items sold from a warehouse can be replaced from the factory, i.e. the rate at which trading stock is sold and replaced. In retailing, this is total sales divided by the average inventory at selling prices.

Stock turnover is an analytical tool that indicates the number of times that an inventory is sold (turns over) during one year. To be useful, this figure is then compared to historical turnover rates and industry rates. The inventory turnover rate can be computed on cost as follows:

Inventory turnover = cost of goods sold/average inventory at cost.

An inventory turnover figure of three, for example, means that the average inventory has been sold three times during the period. Thus inventory turnover indicates the rapidity with which merchandise is sold by the retailer.

Dictionary of Marketing (Dictionary of Marketing 2009) continues that regardless of what line of trade the retailer is in, an increasing rate of inventory turnover is usually indicative of improving merchandising performance. By turning inventory over rapidly, the retailer reduces his or her inventory financing costs as well as other inventory carrying costs, such as storage and insurance, and helps to minimize the amount of obsolete, out-of-fashion, and shop-worn merchandise that must be sold off at high markdowns. Moreover, the more rapid sale of merchandise reflected in an increasing rate of turnover means that the retailer is making more effective use of the capital invested in inventory. This, in turn, should lead to a higher rate of return on investment (ROI).

Dictionary of Marketing (Dictionary of Marketing 2009) writes also that high turnover is an indicator of good merchandising performance, but not the cause of good performance. A high rate of inventory turnover reflects the fact that the

retailer is doing a good job of merchandising. But this does not mean that the retailer can achieve good merchandising performance merely by increasing turnover. For example, the retailer could very likely increase his or her merchandise turnover substantially simply by offering huge price reductions and by spending inordinate sums on advertising.

Merchandise would flow quickly through the store and high rates of turnover would result, but the heavy price reductions and advertising costs would drastically reduce or even eliminate gross margins and net profits. High turnover created by such tactics would clearly detract from merchandising performance.

Van Weele (2005, 302) describes *the stages in the buying-selling cycle* as follows:

a) Demand estimating for a particular item.

*In this stage the sales opportunities of the product concerned are estimated based on either market research or “market intuition”. These sales opportunities are translated into sales forecasts and budgets for the coming period, preferably detailed at a monthly or weekly level. This information provides the basis for the next stage.* (Van Weele 2005, 302)

b) Defining product assortment policy and distribution strategy

The next step according to Van Weele (2005, 302) is to define the product's assortment policy. Important decisions are to decide how deep (number of product items per product group) and how broad (number of product groups) the assortment needs to be. With regard to the distribution policy, important elements are to decide which products will be kept in stock, for which products consigned stocks will be used, which products are to be delivered through the company's own distribution centre, and which products are to be delivered directly from the manufacturer to the store or even to the customer. One of the most important future tasks for PTC's procurement processes is to define product assortment policy and the distribution strategy per product group and finally even per product. In order to improve PTC's inventory turnover per product group PTC has started to use more and more the strategy of delivering the products directly from the manufacturer to the customer.

### 3.2 Public Procurement

According to Van Weele (2005, 350) public procurement distinguishes from purchasing for private enterprise procurement. The European Union Directives provide guidance in their dealings with supplier. First, decision making in purchasing is often involved with political objectives and issues. Second, the budget system used by the government does not provide sufficient incentive for budget holders to actively strive for the best value for money.

Usually, e.g. the budgets of the Finnish Police Stations should be spent in the year they are assigned. Building up financial reserves and shifting these to the next year is difficult. This explains the spending fever that may be observed at the end of each financial year.

Third, according to Van Weele (2005, 350), most countries still favour a nationalist and protectionist approach when it comes to placing orders with suppliers.

Depending on the situation, there are three purchasing procedures available for awarding public supply contracts: the open procedure, the restricted procedure and the negotiated procedure. Van Weele (2005, 346) defines the three purchasing procedures as follows: open procedure, restricted procedure and negotiated procedure.

*In the open procedure* the public entity will submit a tender through a contract notice in the Official Journal of the European Communities and/or the Tender Electronic Daily (an electronic database), on which all interested supplier may submit their proposals.

*In the restricted procedure* the suppliers who have expressed their interest following publication of the contract notice, only those so invited by the contracting authority may submit tenders.



*In the negotiated procedure* the contracting authority consults the suppliers of its choice and negotiates with them the terms of the contract, e.g. the technical, administrative and financial conditions.

PTC uses mostly the open procedure. The tenders will be published in an electronic database called “www.julkisethankinnat.fi”. The possible suppliers can define their own product area in that database so that whenever a tender published related to that defined product area, they will get an email reminder.

Van Weele (2005, 350) writes that the basic underlying principles in EC procurement Directives are non-discrimination, fair play, transparency of procedures and open communication to the international supplier community.

### 3.3 In-House procurement

According to European Union („In-House“ Procurement, 2006), In-house procurement is an own business, which is free of procurement (In-House-Business). In its so called Teckal-Decision, the European Court of Justice explained that an In-House-Business which is free of procurement is existent, if the public contract is awarded to a company

- which is controlled by the local authority, similar to a control exercised over an own department.
- which substantially performs its tasks for the local authority or authorities that hold their shares.

Wilmer, Cutler, Pickering, Hale and Dorr (2005, 1) define In-House procurement as follows: In-House procurement means the award of public contracts to joint-public-private companies or public authorities without the need for compliance with formal award procedures.

### 3.4 Classification of purchasing goods

According to Iloranta & Pajunen-Muhonen (2008, 137), the classification of purchasing goods based on the purpose of end-use divides purchasing into three following groups:

A) Direct (product related) purchasing

- Normally a job of purchase organization. The items are production related such as raw materials catalysts and semi-manufactured products

B) Indirect (non product related) purchasing

- Such as spare parts, office supplies and work clothes

C) Investments

- Such as buildings, manufacturing equipment and computers trucks, cars etc.

The classification defines the targets of purchases. Also the role of purchasing organization has been defined by the classification. Traditionally the purchasing organization concentrates on direct purchasing and the other purchases have been fragmented to other part of the organization.

#### 3.4.1 Indirect purchasing

Iloranta & Pajunen-Muhonen (2008, 368) says that the indirect purchases are normally fragmented to other part of organization(s) than to purchase organization. Typically the share of indirect purchases in industry companies 20-40 % of the total value of purchasing, but in public sector near 100%.

The public sector units are service organizations. In a service organization the real production process is not so clear and especially the purchasing process. The purchases will be done fragmentarily in different part of organizations so that the centralized control is missing and the main point is the purchasing in order to satisfy the needs of own unit.

Iloranta & Pajunen-Muhonen (2008, 370) continues that there is a lot of saving potential, if indirect purchasing could be more centralized in public sector. The possible saving potential could be 10-20 % of the total purchase value.

The management of indirect purchasing has typically been spread through the whole organization and nobody has the whole responsibility of that. The purchasing turns easily as a wild operation, where each part of organization or user acts according to his or her own liking and imagined budget. It might be difficult to get answers to questions that are important for developing the purchasing: Such as

- Where to buy?
- From whom to buy?
- How much to buy?
- At what price to buy?
- From where to get information related to purchasing?
- How to follow-up and control the purchasing?

The wild purchasing means often double work and ineffectiveness. The purchasing is often done beside his or her main work. Also the needed knowledge and routine are missing. When the purchases are not being combined, those can not be centralized for bigger volumes and for invitation to tenders.

Iloranta & Pajunen-Muhonen (2008, 371) says that when centralizing indirect purchases to skilled hands, remarkable savings can be achieved; lower operative costs and purchase prices. The most important developing areas tasks are:

- to create common purchase strategy
- to create common regulations
- to clarify processes and way of action
- to use tender invitations
- to use electronic purchase system

### 3.5 Buying behaviour

According to Van Weele (2005, 40) the buying behaviour needs to be analyzed as an interactive process. The interactive process between buyers and sellers can be described in terms of the following physical characteristics:

- the number of times the parties make contact;
- the properties of the project of exchange: the product;
- the degree in which the process is formalized (written record, rules and regulations);
- characteristics of the parties involved

Based on these elements, the transaction process in terms of the physical exchange can be described and defined e.g. for all products groups at PTC.

The interaction process can also be studied from “social exchange” perspective: in what way does the process take place, how do organizations achieve a particular interaction, under what conditions can this social process evolve? In terms of time, the interaction process will proceed faster as the parties get to know each other better and develop more trust in their mutual relationship.

One aspect of buying behaviour this is the mutual adaptation of the parties involved. Van Weele (2005, 41) writes that during the interaction, the understanding of the mutual positions grows and the parties get closer. This is expressed in, among other things, the adjustment of the supplier’s commercial and manufacturing organization to the client organization. It is a major importance for any organization to maximize the chances of a successful interaction process. Seen from the other side, the supplier will try to increase its chances for a successful interaction process by limiting its activities as much as possible to those transactions where the fit between the supplier’s marketing policy and production system on the other hand, and the customer’s requirements on the other hand, is optimal.

Van Weele (2005, 41) continues that the supplier can furthermore attempt to change the customer's preferences and perceptions by influencing three types of uncertainties:

- *Uncertainty with regard to the definition of the requirements* (“*requirements uncertainty*”). The supplier responds to the question: “Are we buying the right product for our problem/needs?”
- *Uncertainty with regard to the outcome of the transaction* (“*transaction uncertainty*”). The question anticipated here is: “Will the supplier actually perform in accordance with the agreement (i.e. regarding delivery times and quality)?”
- *Uncertainty with regard to the right choice of supplier* (“*market uncertainty*”). This type of insecurity is reflected in the question: “Are we selecting the right supplier from the group of potential suppliers?”

Those three types of uncertainty can define the characteristics of the buyer-seller relationship and how it will develop later. We will see that understanding these kinds of uncertainties and risks is important when dealing with often complex purchasing decisions.

### 3.6 Non-profit organization buyer behaviour

According to Kotler (1982, 252) non-profit organizations get involved in selling goods and services and ideas to other organizations. They need to understand the buying organizations' needs, resources, policies and buying processes. They need to take into account several considerations not normally found in consumer marketing:

1. Organizations buy goods, services and ideas for such purposes as reducing costs, serving their internal clienteles' needs and meeting social and legal obligations.
2. More persons tend to participate in organizational buying decisions than in consumer buying decisions. The decisions participants usually have varying organizational responsibilities and apply varying criteria to the purchase decision.

3. The buyers operate under formal policies, constraints and requirements established by their organizations.
4. Selling to organizations tends to involve more personal contact and negotiation than consumer marketing.

Kotler (1982, 254) writes further that the seller must attempt to identify the people in the buying organization who are likely to get involved in the buying process. The decision making people in buying organization, who participate in the purchasing decision-making, who share some common goals and the risks arising from the decision, play any of five roles in the buying process:

1. Users. Users are the members of the organizations who will use the product or service. In many case, the users initiate the buying project and play an important role in defining the buying specifications.
2. Influencers. Influencers are those members of the organizations who directly or indirectly influence the buying decision.
3. Buyers. Byers are organizational members with formal authority for buying.
4. Deciders. Deciders are organizational members who have either formal or informal power to select or approve the product or service.
5. Gatekeepers. Gatekeepers are members of the organizations who control the flow of information to others.

The seller's task is to identify the members of the buying organization. The seller also recognizes the role of personal motives in the organization buying process. The seller should also take into account the human and social factors in the buying situations and address more emotional and interpersonal appeals.

## 4 EFFICIENT CONSUMER RESPONSE (ERC)

### 4.1 Definition

*Efficient Consumer Response (ECR) is a joint strategy for providers and distribution channels, dedicated to providing final consumers with the highest value, the best service and the greatest variety of products, by fitting together the needs coming from the firm's supply chain and the customer's needs. ECR is a system or a movement that eliminates the unnecessary costs in the supply chain. Effectiveness, flexibility and customer orientation are the principles of ECR.* (Soret, de Pablos & Montes 2008, 603.)

Van Weele (2005, 309) describes Efficient Consumer Response (ECR) as follows: ECR is originally a grocery industry supply chain management strategy aimed at eliminating inefficiencies, and excessive or non-value-added costs within the supply chain, thus delivering better value to consumers. It is designed to re-engineer the supply chain away from "push system" in which manufactures "push" products into stores, towards a "pull system" in which products are pulled down the supply chain into the store by consumer-demand information captured at the point of sale. In 2009 PTC has created seven national wide work groups in different product areas in order to develop (if needed), find, test and propose the products that are pulled down by consumer-demand information. Because of PTC operating in almost open competition, PTC has to act according to consumers' wishes, even whispers.

ACNielsen (2006, 13) writes about the evolution of Efficient Consumer Response that in the early 1990s, the grocery retailers in the United States were ready for a better way to run their business. Margins of about one percent at the time were unacceptable; a dramatic change was needed. So the retailers sought a way to improve margins and compete more effectively. They wanted to reconnect with consumers and satisfy their needs. Given the endless variety of new products pouring into the marketplace, retailers wanted to ensure that their shelves were stocked with products that consumers wanted to buy. In fact, they wanted to stay in business.

According to Van Weele (2005, 309) the ultimate goal of ECR is to produce a responsive, consumer-driven system which allows distributors and suppliers to work together in order to maximize consumer satisfaction and minimize costs. The technologies, which are primary electronic commerce (e-commerce) components, are used to support these efficient business processes.

Van Weele (2005, 309) adds that ECR attempts to eliminate inefficiencies within the supply chain by introducing strategic initiatives in four areas:

1. *Efficient store assortment.* This initiative is aimed at optimizing the productivity of inventory and self management at the consumer interface - the store level. Optimal allocation of goods maximises consumer satisfaction by providing the best products and services while, at the same time, ensuring the most efficient use of available space to increase manufacturer, distributor and retailer profitability. The relation between manufacturers, distributors and retailers is crucial in achieving efficient store assortment. To streamline business practices in the area of store assortment, manufacturers, distributors and retailers need to adopt a “Category management” strategy (see 4.3).

For PTC, the efficient store assortment means at least that PTC needs to understand, what is the unique contribution or value that the certain product brings to the product mix.

2. *Efficient product introduction.* According to Van Weele (2005, 309) the objective of this initiative is to maximize the effectiveness of new products development and introduction activities, in order to reduce costs and failure rates in introducing new products. This is achieved by involvement of wholesalers/distributors, retailers and consumers at an early stage of the new product development process. Manufacturers, distributors and retailers must work together as allies to reduce the costs of products development and to produce only products anticipated and demanded by the consumer marketplace. Once again, the “Category management” strategy pays a



crucial role in achieving this initiative, because of its contribution to an understanding of successful existing products.

The efficient product introduction is also crucial for PTC. PTC has just in 2009 created work groups that seeks and develops new products. The new activity brings soon new products into PTC's offering and the challenge is to introduce those in effective way at an early stage of the launching process.

3. *Efficient sales (promotion)*. Van Weele's (2005, 310) third initiative aims at maximizing the total system efficiency of space optimization, sales, trade and consumer promotions. This can be achieved by introducing better alternative trade and consumer promotions, such as pay for performance and every day price policy. Thus, the efficient promotion initiative endeavours to remove excessive costs by reengineering promotion practices, and is also supported by the "Category management" strategy.

As a state owned company PTC's promotion means low profile E-commerce product and seasonal promotion. The customers have been given by the law. Somehow PTC suffers from private competitors' more active promotion and customer visits. PTC has no resources for that kind of activity.

4. *Efficient product replenishment*. Van Weele (2005, 310) adds that the efficient product replenishment is the fundamental platform which supports the overall ECR strategy. The objective of this initiative is to optimize time and cost in the replenishment system by the provision of the right product to the right place at the right time in the right quantity and in the most efficient manner possible.

Efficient product replenishment is also essential for PTC, in order to remove inefficiencies in product replenishment (for example, high inventory levels and carrying costs and sporadic manufacturing schedules

of PTC's suppliers). And in order to aim at better customer satisfaction by *never-out-of-stock-policy* as well.

In figure 2 can be seen ECR's strategic initiatives in four areas that attempts to eliminate inefficiencies within the supply chain. All those strategies and the processes mentioned below are essential for PTC too.

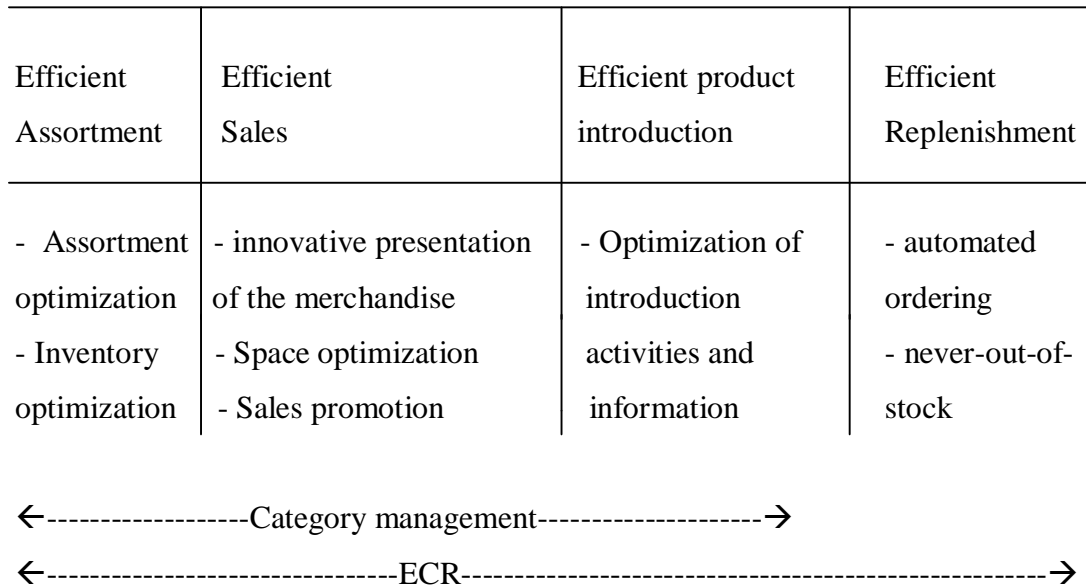


Figure 2. Efficient Consumer Response ECR (Skjøtt-Larsen, Schary , Mikkola, Kotzab 2007, 167.)

According to Finne-Kokkonen (2005, 151) the above mentioned four ECR strategic areas include following value-added processes:

<u>Strategy</u>		<u>Value-added process</u>
Efficient Assortment	>	Offering the consumer wanted products
Efficient Sales	>	Getting through wanted product information and value
Efficient product introduction	>	Developing and introducing consumer satisfying products
Efficient Replenishment	>	Maintaining wanted products in stocks or stores

## 4.2 Benefits

Skjøtt-Larsen, Schary, Mikkola & Kotzab (2007, 161) describe that the simple message of Efficient Consumer Response (ECR) is following: When facing stable or decreased sales volumes, the implementation of ECR standards within the company leads to great savings potentials. The basic notions of ECR refer to harmonization and cooperative adaptation of commonly agreed upon norms and standards that are formed to fit logistics (supply side) and marketing (demand side) business processes that avoid the duplication of costs. Supply and demand side includes the “involved” departments (e.g. procurement, logistics, marketing and sales) at both retailer and manufacturer levels.

ECR benefits according to Tarpila (1999, 12) are:

- For the Consumer:
  - Better service
  - Enlarged assortment
  - Easier to buy
  - Decreasing of “empty shelf”-situations, better availability
  - Better quality, more “fresh” products
  
- For the Seller:
  - Higher consumer loyalty
  - More information about consumers
  - Less “out-of-stock” situations
  - Better “brand” and reputation among consumers

According to Rodriguez (2001, 1) ECR concept should be consumer driven, providing consumers with products and services that consistently meet or surpass their demands and expectations. It is a system that has to react dynamically and to ensure continuous improvement of consumer satisfaction, products and quality. These requirements drive all the system.

ECR is also focused on reduction of both costs and response times. To achieve costs reduction, management is focused on product categories. Both the value of the product and the needs of the consumer are taken into account. In addition, to achieve reduction on response times, information flow and product flow should be as automated as possible, eliminating redundancy on the supply chain. The elimination of redundancy decreases overall inventory of the system.

Finally, planning and decision should be made in a collaborative way, among all traders at the supply chain. A core requirement for achieving this goal is to establish better relationships, such as alliances, with partners. Information sharing is necessary for this integration in order to reduce variances and uncertainties in the supply chain, and to permit accuracy and speed in the system. There is also a high need of measurement to achieve control and measure performance of the whole system. These concepts are also summarized on Parts on Figure 3.

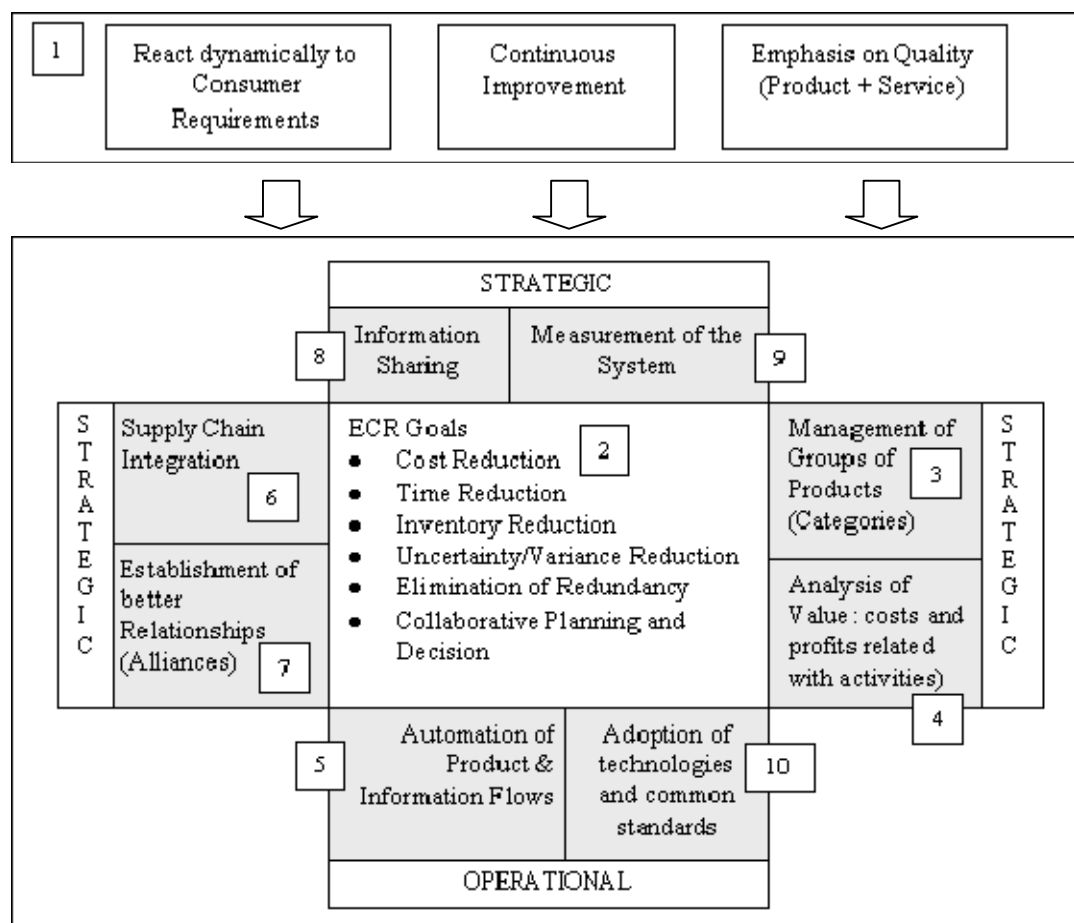


Figure 3. Summary of ECR concept (Rodriguez 2001, 2.)

Explanations for Figure 3 numbering are:

- (1) Consumer driven, react dynamically
  - (1) Ensure continuous improvement of consumer satisfaction, products and quality
- (2), (3), (4), (5) Reduction of both costs and response times
  - *Cost: product categories*
  - *Times: automation of information flows and product flows*
  - *Elimination of redundancy decreases overall inventory*
- (2), (6), (7), (8), (9), (10) Planning and decision should be made in a collaborative way at the supply chain
  - *Better relationships*
  - *Information sharing*
  - *Reduce variances and uncertainties*
  - *Need of measurement*

#### 4.3 Category management

ECR Europe Category Management Pilot Team Report (2000, 5) defines *Category management* as a retailer/supplier process of managing categories as strategic business units, producing enhanced business results by focusing on delivering consumer value, not only by increasing sales

According to Hasselgren (2004, 17) *Category analyzing* means the estimation of products' strengths, weaknesses and profitability and at the same time creating the picture how to manage the product group.

#### 4.3.1 Process model of category management

Figure 4 shows the 8-steps process model of category management.

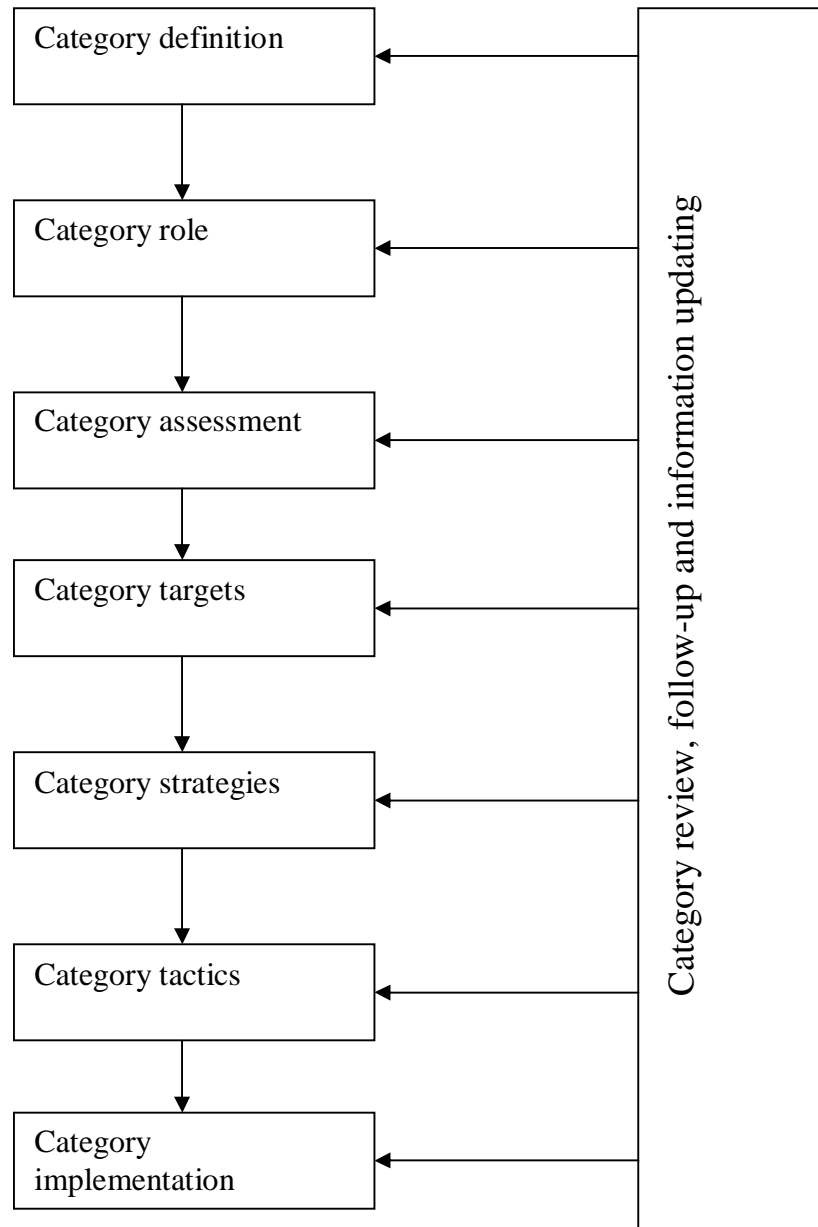


Figure 4. 8-steps process model of category management (Lloyd-Leach 2009, 6.)

According to Småros (2002, 38) the core of ECR is the category management process like in Figure 4. Category management is based on the idea of managing product categories as strategic business units. The category management process

defines the categories, gives them business roles, assesses them and sets performance measures. The process also defines strategies for realising the category's performance objectives, as well as tactics for carrying out the strategies.

Finally, the tactics, i.e., the decisions concerning assortments, pricing shelf presentation and promotions, are implemented and results are reviewed, which starts another development round. It is even possible to include a new element to that process: consumer value creation. Consumer value creation deals with concepts such as loyalty management and offering integrated solutions to the consumer. The aim is to move from transactions to relationships and from products to complete solutions.

Hasselgren (2004, 16) adds that the main developing area of category management is to define product groups in the best way from customers' point of view. As the Figure 4 shows, there are several phases in defining product groups. Every phase includes follow-up and information updating.

#### 4.3.2 Category definition

*A category is a distinct, manageable group of products/services that consumers perceive to be interrelated and/or substitutable in meeting a consumer's needs.*  
(ECR Europe Category Management Pilot Team Report 2000, 4.)

Supply Chain Management: An International Journal (4/1999, 3) writes that one of the major business activity or initiative in order to achieve in point 4.1 mentioned four (4) efficiencies is category management. Category management has evolved to mean a process that involves managing product categories as business units and customising them on a store-by-store basis to satisfy consumer demands. A category is a group of products having a common consumer end use. Category management allows the category manager to operate a category like a business so as to identify optimal product mix and to use point-of-sale (PoS) information that indicates customer's wish.

According to Sandjai Bhulai (1997, 1) the purpose of category management is improving the operating results of the company by focusing on the consumer. Consumers are getting more demanding and want to choose from large assortment of products. Further more consumer satisfaction is a great advantage in a competitive business environment. In this view products are more than goods, which are just being sold; products also play a strategic role.

Småros (2002, 39.) adds to category management that category definition is to determine the products that make the category and its segmentation from the consumer's perspective.

#### 4.3.3 Category role (purpose)

*Category role is to assign a role for the category based on a cross-category comparison considering consumer, market and retail information. (Småros 2002, 39.)*

Finne-Kokkonen (2005, 203) writes that category roles help to compare product groups or products and to allocate resources between them. It is important to create as balanced and well working category portfolio as possible which help to conduct the business towards consumers' needs. The roles could be attractive ones, day-to-day ones, seasonal ones etc.

According to ACNielsen (2006, 81), the following questions provide the right perspective for assigning roles and managing categories:

- (1) How important is the category to the consumer? Look at consumers' penetration, purchase frequency, annual spending, and degree of loyalty.
- (2) How important is the category to the seller? The seller's distinct approach will differentiate the category. Look at its volume rank within store or department, growth trend, and seasonality.
- (3) How important is the category to the seller's competitors? Look at its volume rank and trend within competing stores.



- (4) What is the category's outlook in the marketplace? Look at overall growth, new targeted opportunities, and impact of factors such as new brands, benefits, or packaging.

#### 4.3.4 Category assessment

*Category assessment is to conduct an analysis of the category's subcategories, segments etc. by reviewing consumer, market, retailer and supplier information.*  
(Småros 2002, 39.)

According to ECR Europe Category Management Pilot Team Report (2000, 43) the key business questions concerning Category Assessment are

- A1) what are the geographies (regionality) of the segments?
- A2) who are the key competitors in the category?
- A3) how are the segments performing (where are the opportunities for growth/improvement)?
- A4) which products help build traffic, incidence, transaction and profit?
- A5) what are the key tactical drivers which may be impacting segment performance?

Table 1 shows simple way of analysing sales value and profits of the category under a certain period.

Product	Sales value	Actual gross margin %
Product 1		
Product 2		

Table 1. Sales value and gross margin (ECR Europe Category Management Pilot Team Report 2000, 43.)

According to ACNielsen (2006, 96), by determining where else a consumer shops and why, you can begin to understand what is important to the consumer. You can then quantify the opportunity of changing your assortment, pricing, or other elements.

Consumer assessment profiles category buyers and their purchase behaviour. Panel data is a key resource in answering such questions as:

- How frequently do consumers make purchases in a category?
- How much do they spend per occasion and annually?
- Who buys the category? What is the demographic profile, or life stage?
- Where do consumers buy the category? What channels?
- What drives the purchase? Promotion, impulse?
- When do they purchase? Day of week, time of year?
- Are category purchases typically planned or impulse?
- Which categories are related? What else is in the buyer's basket?
- How loyal are shoppers to specific retailer's categories?

It is crucial not only answer these questions as they relate to shopper behaviour in your store, but also in the stores of your competitors or the marketplace as a whole. That way, you have benchmarks that enable you to better evaluate your performance.

Market information and thus market assessment gives also valuable information from questions such as:

- How does pricing compare with the competition?
- How does shelf presentation compare?
- How does assortment compare?
- How does promotion activity compare?

ACNielsen (2006, 98) continues that seller information and thus seller assessment details your own category pricing and profitability, item movement, and shelf placement. The category manager takes an inward look at how well the category

performs in its store and how that category contributes to total margins, store image, and brand equity. Point-of-sale data and space management software data are primary resources used to answer these questions:

- What are the overall sales and profit trends?
- How productive is the current assortment?
- How productive is the current pricing?
- What are the inventory turns and days of supply?
- What are the profit margins, and inventory levels?

#### 4.3.5 Category targets

*Category targets is to establish the performance measurements and targets.*  
(Småros 2002, 39.)

According to Finne - Kokkonen (2005, 294) the target can be to increase:

- Amount of consumers: store visits or WEB purchasing
- Sales: to get to buy products that consumers do not usually buy
- Cash flow: to point products that have quick turnover etc.
- Profit: to highlight products that have higher sales margin

Table 2 shows an example of target measurement

	Actual sales value	Target sales value	Actual gross margin %	Target gross margin %	Amount of consumers				
Product 1									
Product 2									

Table 2. Example of target measurement (ECR Europe Category Management Pilot Team Report 2000, 44.)

#### 4.3.6 Category strategies

Strategies in general are the means to achieve results. *Category strategies is to develop the marketing and product supply strategies. That can be simply focusing on growth and profit or certain product basket sizes.* (Småros 2002, 39.)

ACNielsen (2006, 124) writes that after defining the category, establishing its desired role, assessing its current state, quantifying specific targets, the strategy provides an overarching picture how to achieve those goals. Done well, this activates sharp, focused marketing directions for individual categories, each with its own role and projected performance targets.

ACNielsen (2006, 126) continues that common category strategies include:

- *Acquisition*: To improve sourcing practices not just to lower acquisition costs but to raise the quality and reliability of goods as well
- *Inventory management*: To reduce total goods in the supply chain pipeline and their related expenses such as interest and storage costs
- *Product handling*: To improve receiving and handling practices at warehouses and stores
- *Order/payment transaction*: To improve order and payment processes
- *Transportation*: To improve processes related to moving the goods

Such procurement and distribution strategies can greatly benefit category performance, writes ACNielsen (2006, 126).

#### 4.3.7 Category tactics

*Category tactics is to determine the optimal assortment, pricing, shelf presentation and promotion tactics. When having the strategies, it is time to determine what tactics will be used to deliver the strategy. The aim should be the best tactical mix to satisfy target consumers in terms of range, pricing, promotions and merchandising.* (Småros 2002, 39.)

According to ECR Europe Category Management Pilot Team Report (2000, 52) the key business questions concerning Category tactics are:

- A1) Range/Assortment: What is the optimal assortment?
- A2) Pricing: What is the optimal pricing structure?
- A3) Promotion: What is the optimal promotions mix?
- A4) Merchandising: What is the optimal use of space and adjacencies?

A number of inputs will be used to develop the category tactics:

- Ranging Strategy i.e. is the product mix breadth or depth?
- Pricing Strategy i.e. what is the price perception versus price reality?
- Promotions Strategy i.e. will the seller focus less on promotion and work with suppliers to keep prices low?
- Merchandising strategy e.g. how important is to “look and feel” of stores and how does the seller use promotional/seasonal space? This includes the allocation of space for each category (often with variations according to factors such as regionality and store size)

Inputs to tactical phase means

- A clear understanding of what target consumers are buying: which segments, brands and products are important to them?
- An indication of the size of the opportunity within each category and sub-category, and what the likely causes of the underperformance may be: e.g. wrong customers/products, low penetration/frequency?
- Assessment of which category tactics will best close the gap - with input from the seller
- A view on which competitors to track (e.g. in pricing)

ECR Europe Category Management Pilot Team Report (2000, 53) continues that where the data is available, ranking of sales volume or value will identify the most important missing products.

Remarkable is that when introducing a new product, a seller should “walk the product through a supply chain” to assess how the product might impact costs and complexity.

Considering should also be given to:

- Whether the new product will increase shelf space utilisation
- Whether the product is easy to merchandise in store
- Handling costs, by estimating potential volumes and processes, asking questions around any double handling
- Processes which are automated/manual
- Cross docking opportunities and whether this can be done in light of volume potential
- Whether delivery can be directed to store and whether this would deliver any benefits
- How the product will be handled in the depot (pallets, etc.).

#### 4.3.8 Category implementation

*Category implementation is to implement the category business plan through a specific schedule and list of responsibilities. (Småros 2002, 39.)*

According to Gruen & Shah (2000, 483) the commitment, in the organization and among suppliers, is the essential thing in category implementation. All activities of the organization should be built on consumer orientation. For successful category implementation there must be defined, measurable roles and targets. Concentration should be on right consumer groups and better consumer satisfaction.

#### 4.3.9 Category review

*Category review is to measure, monitor and modify the category business plan on a periodic basis. In order to achieve the benefits of category management as well as the benefits of the whole ECR there must be right, consumer driven assortment (products), new product launching and promotion and sufficient replenishment. (Småros 2002, 39.)*

According to ACNielsen (ACNielsen 2006, 173) the review step revolves around the process of category management on a precise schedule. The recurring review monitors the progress of each step to keep category on course. It is a vital evaluation tool that unveils problems and leads to fast corrections, and thus protects the integrity of the category plan.

To be thorough requires examination of five key areas:

1. *Scorecard*: Current status against internal financial goals
2. *Market place*: Any changes within the marketplace that could impact the plan, such as sales and consumption trends, strategic changes by competitors, new development among the category's brands, and retail coverage.
3. *Status of the implementation plan*: What has been done so far? The review identifies any weak spots in execution, and the remedy (what should be corrected) depends on the source of the problem. Retail culture is one of urgency, not to wait for a problem to improve, but to act quickly.
4. *Activity summary*: A recap of activities within the category, such as promotions run or changes in assortment, pricing, supply systems, or space allocation. The list of tactics may seem endless, but they are the mechanism for better results, so they deserve attention.
5. *Implications*: Next steps, recommendations for any changes, and thoughts about future prospects for the category.

## 5 DEMAND MANAGEMENT

### 5.1 Different states of demand

Kotler (1982, 10) writes that marketing arises when an organization forms an idea of a desired level of transactions that it wants with a target market. At any point in time, the actual demand level may be below, equal to, or above the desired demand level. E.g. in chemical forest industry, there can be seen regular demand cycles over the decades but the desired demand level lasts always only a short period.

Marketing or sales management tasks is to influence the level, timing, and character of demand in a way that will help the organization achieve its objectives.

Kotler (1982, 10) continues that demand may be in any one of eight states and each presents a different marketing challenge:

1. *Negative demand*. A market is said to be in a state of negative demand if a major part of the market dislikes the product and in fact may even pay a price to avoid it. The marketing task is to analyze why the market dislikes the product, and whether a marketing program can change the market's beliefs and attitudes through product redesign, lower prices, and more positive promotion.

2. In case of *no demand* target consumers may be uninterested or indifferent to the product. The marketing task is to find ways to connect the benefits of the product with the person's natural needs and interest.

3. *Latent demand*. A substantial number of consumers may share a strong desire for something that cannot be satisfied by any existing product or service. The marketing task is to measure the size of the potential market and develop effective goods and services that would satisfy the demand.

4. *Falling demand*. Every organization, sooner or later, faces falling demand for one or more of its products. The marketer must analyze the causes of market decline and determine whether demand can be restimulated through find new target markets, changing the product's features, or developing more effective communications. The marketing task is to reverse the declining demand through creative remarketing of the product.

5. *Irregular demand*. Many organizations face demand which varies on a seasonal, daily, or even hour basis, causing problems of idle capacity or overworked capacity. In mass transit, much of the equipment is idle during the off-peak hours and insufficient during the peak travel hours. The marketing task is to find ways to alter the time pattern of demand through flexible pricing, promotion, and other incentives.



6. *Full demand*. Organizations face full demand when they are pleased with the amount of business they have. The marketing task is to maintain demand at its current level in the face of the ever-present possibility of changing consumer preferences and more vigorous competition. The organization must keep its quality and continually measure consumer satisfaction to make sure that it is doing a good job.

7. *Overfull demand*. Some organizations face a demand level which is higher than they can or want to handle. The marketing task, called demarketing, requires finding ways to reduce the demand temporarily or permanently. General demarketing seeks to discourage overall demand and consists of such steps as raising prices and reducing promotion and service. Selective demarketing consists of trying to reduce the demand coming from those parts of the market which are less profitable or less in need of service. Demarketing does not aim to destroy demand but only reduce its level.

8. The demand can also be *unwholesome*. Products which are considered unwholesome will attract organized efforts to discourage their consumption. The marketing task is to get people who like something to give up. Anti-product marketers use such tools as fear communications, price hikes, and reduced availability to discourage consumption. Products could be like cigarettes, alcohol, handguns and large families.

Kotler (1982, 11) adds that organizational marketers will confront all or most of these demand problems as they work on various marketing problems facing the organizations.

## 5.2 Demand management definition

According to Finne - Kokkonen (1998, 130) *Demand management* means that the company must recognize its customers and their needs and as well as the company must act according to those needs. The company's objectives must also come from customers so that those objectives can be reached through effective cost management and other critical functions like time and quality management.

Finne - Kokkonen (1998, 131) continues that the core of demand management is category management where the product groups will be conducted like own business units including planning and other factors in order to satisfy customers' needs. Category management aims at defining optimal product assortment based on customers' demand

According to Schary, Mikkola & Kotzab (2007, 30) demand management includes several related activities related to the market: forecasting, customer service, customer order processing, market coordination, and sales support activities.

Schary, Mikkola & Kotzab (2007, 105) continues that some observers divide the supply chain into supply management and demand management, where supply management covers the flow of material and products from production back to sources of supply. Demand management encompasses the span from customer order to production.

Monzcka, Handfield, Giunipero, Patterson (2009, 16) writes that *Demand planning* identifies all the claims (or demand) on output. This includes forecasts of anticipated demand, inventory adjustments, orders taken but not filled, and spare-part and aftermarket requirement. Added to demand planning you will get supply planning that is a process of taking demand data and developing a supply, production, and logistics network capable of satisfying demand requirements.

### 5.3 Forecast and Plan requirement

Monzcka, Handfield, Giunipero, Patterson (2009, 44) say that the Purchasing cycle begins with the identification of a need (a requirement). In most cases, procurement personnel have an annual or biannual planning process, whereby they will review the spending pattern for the organization, and prepare a forecast of what will be purchased. In some case, there may be a whole set of new requirements that have not been planned for (such as for new product innovations). In such cases, purchasing personnel meet with internal customers to discuss their needs for the coming year. In many firms today, purchasing is the primary vehicle for obtaining external inputs (products and services) from suppliers, so that means that

purchasing personnel have to work with a large number of internal customers, which will often include marketing, operations, finance, information technology, and other internal customers. Through a structured dialog, purchasing will understand and plan for what these customers will be buying and translate this into a forecast that is shared with suppliers.

Figure 5 shows an example of planning and its accuracy in demand forecasting

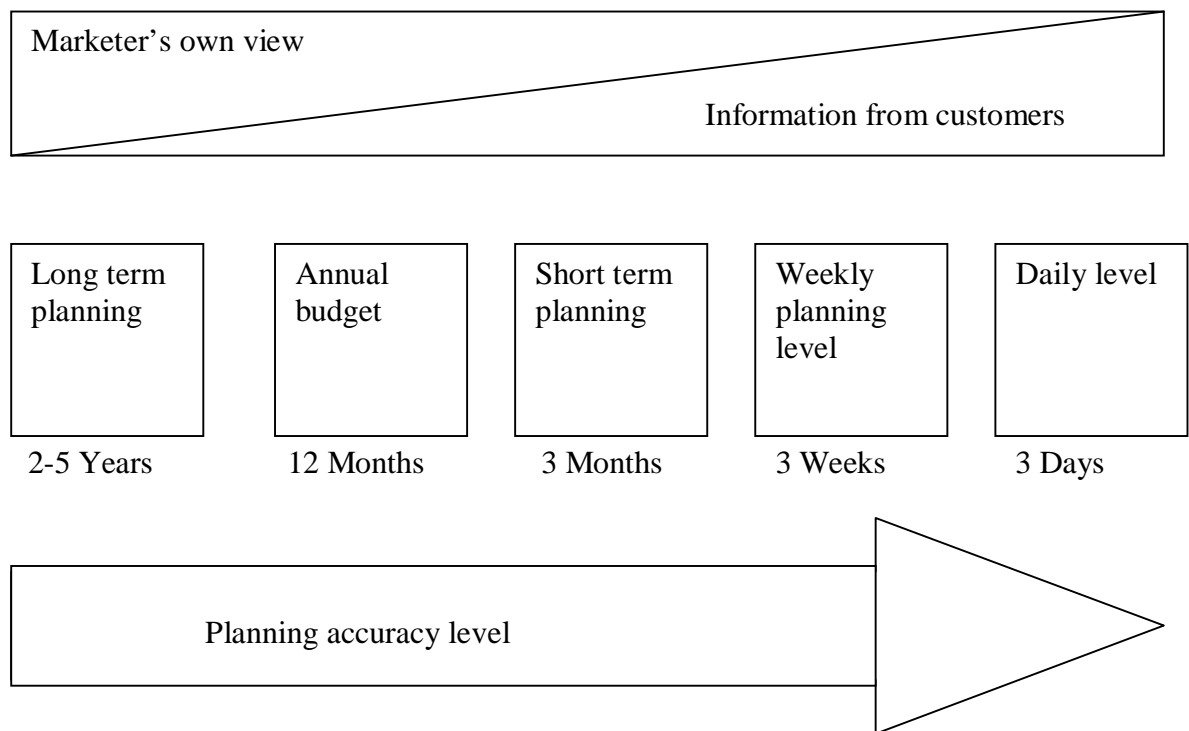


Figure 5: Planning accuracy level (Tarpila, Jan-Erik 1999, 69.)

As the figure 5 shows, the marketer or purchaser need to use all possible sources to in demand forecasting. The customers are the essential ones, but also internal customers and suppliers need to be taking into account as information sources.

#### 5.4 Just-in-Time purchasing

Monzcka, Handfield, Giunipero, Patterson (2009, 67) describes that just-in-time purchasing and manufacturing allows firms to eliminate most receiving forms. Honda of America, fro example, assumes that if its production line does not shut

down it must have received its scheduled shipments from its suppliers. The accounts payable department makes payment unless informed otherwise.

Someone (typically purchasing or material personnel) must monitor the status of open purchase orders. There may be times when the buying firm has to expedite an order or work with a supplier to avoid a delay in a shipment. A company can minimize order follow-up by selecting only the best suppliers and developing internally stable forecasting and ordering systems. When the order for a physical good arrives at the buyer's location, it is received and inspected to ensure that the right quantity was shipped and that it was not damaged in transit. Assuming that the product or service was delivered on time, it will be entered into the company's purchasing transaction system. Physical products delivered by suppliers then become part of the company's working inventory.

According to Skjøtt-Larsen, Schary, Mikkola & Kotzab (2007, 228), for JIT purchasing to work well, demand must be relatively stable. Supplier must be able to anticipate demands, both through levelling of orders or through forecasts that allow them to plan their own capacity. Otherwise, JIT purchasing will push inventory requirements back to supplier, with costs that will influence the cost bid for the supply transaction.

## 5.5 Delivery management

Finne - Kokkonen (2005, 266) writes that *Delivery management* is strongly related to demand management. Delivery management is a body of value chain and through delivery management products will be delivered to customers' hands (to customer, to shops or to other agreed delivery point). Delivery does not mean only transport but also purchasing, warehousing and selling and information flow related to all of those. Often the money flow is integrated to material flow and delivery management. Controlled delivery management tries to find effective ways of working and to minimize all kinds of part optimizing. That can be reached by creating common rules and transmitting real time and correct information through the whole delivery chain.

Customer satisfaction tells in the end how well and effective the delivery management has functioned.

Finne - Kokkonen (2005, 154) continues that the target of delivery management is to offer:

- right amount of right products
- in the right place
- in the right time
- as effective as possible

This target will be supported by exact and real time information flow which has been connected to product flow. In ideal product replenishment system all parts of product flow know well enough how many products are on the way or in stocks in named warehouses. Therefore it is important that information flow quick and exact in order to forecast demand all the time. Then inventories can be reduced and delivery chain planning can be done more effective.

Basic tools for better delivery management are company's ERP-system that supports sales and bar codes. ERP stands for Enterprise Resource Planning. ERP is a way to integrate the data and processes of an organization into one single system as mentioned also before.

## 5.6 Replenishment point

According to Tarpila (1999, 1) ordering (replenishing) point or timing for order proposal defines the certain inventory level that tells the time for replenishing. Ordering point is normally a certain security stock level added to forecasted demand during the delivery time for the product in question.

Hau L. Lee (2002, 61) speaks about intelligent replenishment. That means the "intelligence" in replenishment system:

Scientific  
replenishment

- use real demand history
- track forecast errors
- link to inventory plans

Smart data  
cleansing

- use seasonal profiling
- isolate spiky demand events
- map special patterns

Responsive  
updating

- monitor appropriate signals
- understand their impacts
- update forecast with signals

According to Finne-Kokkonen (2005, 294) replenishment point can be automatic (Automatic Replenishment Programs) based on real sales information collected from ERP system. Automatic replenishment is not always possible. Then personnel together with possible EPR system take care of replenishment.

Essential is that all products will have certain alarm level, that tells the minimum inventory level and the need for ordering more. The needed basic information for agreeing the alarm level can be

- Average demand
- Possible life time of the product like some Forensic products in PTC's offering
- Season variations: e.g. PTC has very quiet summer time and extremely busy November and December
- Possible campaigns that are known: e.g. EU summits somewhere in Finland, when different material and equipment from PTC are needed sometimes at very short notice
- Delivery time
- The size or ordered amount
- The reserved shelf or stock space

Finne - Kokkonen (2005, 294) continues that the target for defining alarm level is that customers and sales are not suffering. The practical issues concerning alarm levels defining are

*Delivery time.* If delivery time of the product is long, the alarm level must be high. Possible demand variations might even make it higher. Also possible supplier's disturbances must take into account.

*The size or ordered amount.* Sometimes the ordered amount might define the alarm level. Some suppliers or products ask for so big one time order volumes that the needed alarm levels must be higher than the demand or delivery time otherwise requires.

Finne - Kokkonen (2005, 294) adds that when defining alarm levels for the products, the challenge is to have correct inventory book keeping all the time. Other challenge is random products or products that are known to be purchased only a few times a year.

## 6 POLICE TECHNICAL CENTRE

### 6.1 Historical path

Police Technical Centre was established 1919. Other remarkable years in PTC's path have been

- 1945 when the Police equipments depot was established
- 1949 when the Police communications depot was established
- 1954 when the Police vehicles depot was established

And finally 1992 when the former depots were merged into the present: POLICE TECHNICAL CENTRE

#### 6.1.1 Police Technical Centre today

Police Technical Centre supports the Finnish Police work by procuring, maintaining and developing the equipment and materials needed in police work. The PTC's responsibilities include the supply of police vehicles and uniforms, care of service weapons, and the acquisition, storage and sale of the material needed by the police. PTC's main customer is the Finnish Police (included the Ministry of the Interior). In addition to the Finnish Police, PTC can serve also the Finnish Customs, the Finnish Frontier Guard, the Finnish Defence Forces and different government offices and

establishments. PTC exports also own products and know-how for example to the EU.

Unlike other police units, the Police Technical Centre finances its operations through the sale of its products and services.

PTC employs about 50 people. The main centre is in Kuusankoski (Kouvola), where are three main functional units: Specialist Advisors Services, Production Services and Material Services. Material Services take care of sales through three shops, located in Kuusankoski, Espoo and Tampere. Alongside the traditional Email, phone and fax sales, PTC has electronic commerce also since 2003. Electronic commerce share is now about 15 % and is increasing yearly.

In figures 6, 7 and 8 can be seen the organizations and especially the environment where PTC operates.

The figure 6 shows the Finnish Police Organization. In Finland, the police service comes under the Ministry of the Interior. The Police Department of the Ministry of the Interior functions as the Supreme Police Command. Within its purview are the Provincial Police Commands, the National Bureau of Investigation, the National Traffic Police, the Security Police, the Police College of Finland, the Helsinki Police Department and *Police Technical Centre* are all subordinate to the Department.

The local police service is made up of 24 police departments, each of which has a central police station, one or more other police stations, police service points and citizen's offices.



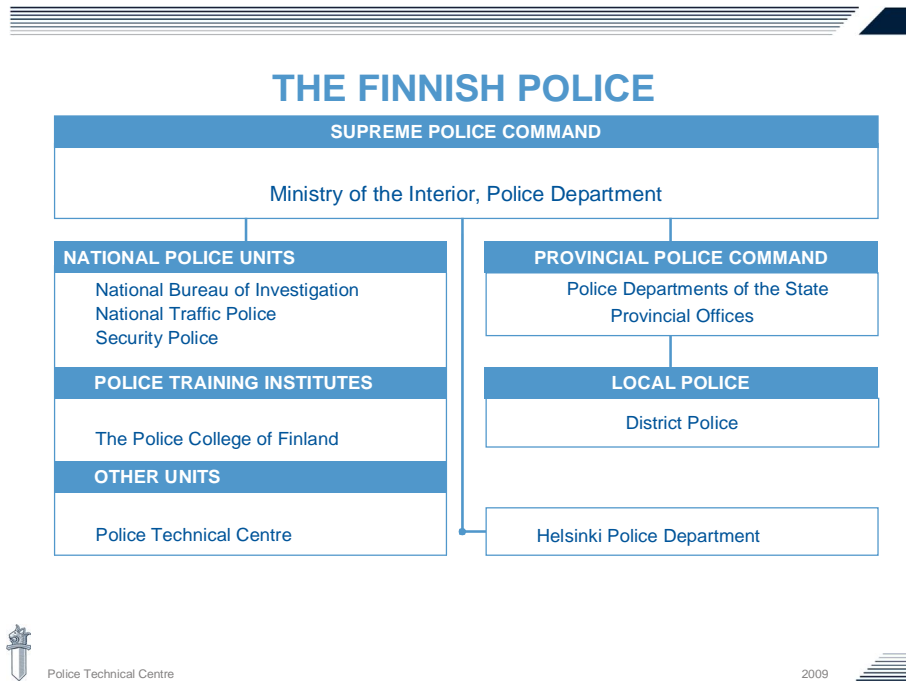


Figure 6. The organization of the Finnish Police

The figure 7 shows the organization of Police Technical Centre. PTC has three Service Units; Specialist Advisors Services for development functions, Material Services for material procurement and sales functions and Production Services for vehicle supply functions.



Figure 7. The organization of Police Technical Centre

The figure 8 shows the organization of Material Services unit. The unit has three locations. The main office is in Kuusankoski (Kouvola), where is a logistic centre with procurement and warehouse functions, but also a shop. Two other locations, Espoo and Tampere, are mainly sales units with small stocks. Like mentioned earlier, PTC finances its operations through the sale of its products and services. In order to survive, also Material Services unit must utilize all possible procurement means, within public procurement law.

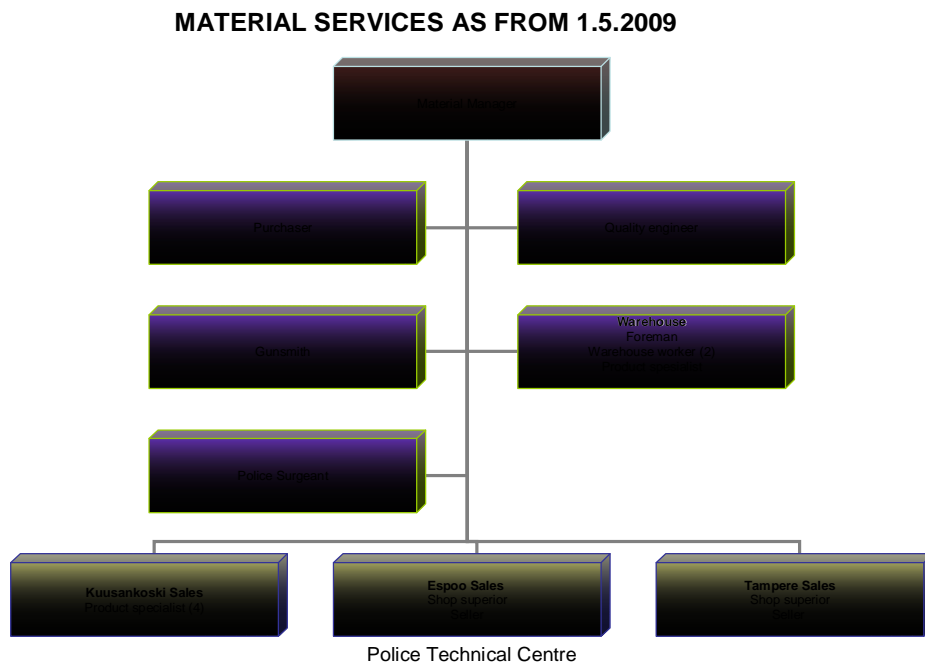


Figure 8. The organization of Material Services unit in Police Technical Centre

## 6.2 Forensic products

Forensic products are the third biggest product group in Material Services Unit's turnover. In 2008 there were 105 separate items to procure and to sell further to police forces.

The Forensic products cover areas like fingerprint taking and recording, evidence collection and marking, optical enhancement, impression evidence, measuring

scales, forensic lights, forensic photography, forensic analysis equipment and personal protective clothing.

Typical single sales articles are e.g. DNA evidence collection kits and foot print folios.

### 6.3 Applying ECR's Category Management and Demand Management theories into practice

The following chapters show the comparison between the chosen theories (ECR's Category Management and Demand Management) and PTC's current situation concerning Forensic product area as well as the needed possible action in order to implement the theories into practice.

#### 6.3.1 Category Management

Like mentioned in chapter 4.3.1, Category management is based on the idea of managing product categories as strategic business units. The category management process defines the categories, gives them business roles, assesses them and sets performance measures. The process also defines strategies for realising the category's performance objectives, as well as tactics for carrying out the strategies.

Category management should do more than contribute to the success of sales operations. Product categories are the building blocks of the store. Some categories may be larger than the others and some may contribute more to the bottom line. But all of them must work well individually and must come together to present a cohesive whole to discriminating, demanding consumers. A category includes a number of products all of which have their own specific sales values and profit margins.

PTC has five product categories. Forensic products are the third biggest of that group five.

There is 8-steps comparison where has been evaluated the current stage of PTC's category management in Forensic product area and then also a possible action plan when implementing category management tools into real life.

The purpose of this assessment is to see where PTC is versus the targets given by Category management theory (see ECR 8-steps process model in page 29). The below mentioned steps present the relationships between the 8-steps theory and the current state at PTC and also the actions (strategies, tactics etc.) that could be used to meet the target state.

### **Product category = Forensic products**

<b>Step 1. Category definition</b>	<b>PTC present state</b>	<b>PTC target state</b>	<b>Needed action</b>
<ul style="list-style-type: none"> <li>- group of products having a common consumer end use</li> <li>- having identified optimal product mix that indicates consumer's wish and need</li> </ul>	<ul style="list-style-type: none"> <li>- The consumer group is defined by law</li> <li>- the optimal product mix based on consumer's wish and need has not been identified: because of many kind of different products (covering the products from daily household, often cheap supermarket products to more complicated and expensive special products)</li> </ul>	<ul style="list-style-type: none"> <li>- PTC has defined product assortment: the assortment covers the products that the consumers expect PTC to have and offer</li> </ul>	<ul style="list-style-type: none"> <li>- PTC needs to define optimal product mix together with forensic units: which products will be bought through PTC, which obviously not (value-added thinking)</li> </ul>

Remarks for step 1. Category definition: There are 24 forensic units, so optimal product mix creation and updating is not impossible.

<b>Step 2. Category role (purpose)</b>	<b>PTC present state</b>	<b>PTC target state</b>	<b>Needed action</b>
<ul style="list-style-type: none"> <li>- product group comparison in order to allocate resources</li> <li>- target is to create balanced, well working category portfolio which help to conduct the business towards consumer's needs and best supports the seller's strategy</li> <li>- can be attractive, day-to-day or seasonal role</li> <li>- questions providing perspective for roles:</li> </ul>	<ul style="list-style-type: none"> <li>- Forensic products is an important and inevitable category for PTC</li> <li>- resource allocation is fixed in Forensic products category</li> <li>- the category product portfolio (low-price or upscale or something in between) is not so precisely defined</li> </ul>	<ul style="list-style-type: none"> <li>- PTC but also the consumers must feel that PTC's role as a Forensic product supplier is indisputable and necessary</li> <li>- the category is clear and known for PTC and the consumers</li> <li>- continuous co-operation with the consumers in order to offer most competing products all the time</li> </ul>	<ul style="list-style-type: none"> <li>- through work groups and personal consumer contacts PTC's Forensic products offering covers only clearly defined products with all necessary updating and information approved by consumers</li> </ul>

a) How important is the category to the consumer? b) How important is the category to the seller c) How important is the category to competitors? -d) What is the category's outlook in the marketplace?			
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Remarks for step 2. Category role (purpose): PTC can not satisfy all forensic units' needs and demands. So the concentrating is needed, but together with consumers.

Step 3. Category assessment	PTC present state	PTC target state	Needed action
- regionality differences - competitors: who and where? - where are the opportunities for growth/improvement? - which products help build traffic, incidence, transaction and profit? - what are the key tactical drivers which may be impacting segment performance? - practical assessment tools will be found from consumer, market, seller and supplier information (see point 4.3.4) like consumer purchase behaviour, price comparison, inventory levels and profit margins	- assessment of sales based on regionality or other arguments have not so systematically done - competitors are mostly known - opportunities or improvement areas are certainly there; more suitable product portfolio based on PTC's features needs to be investigated - PTC uses now some practical assessment tools, but systematic, collected data is missing	- the whole need and demand of Forensic products for the Finnish Police has been evaluated: a) products b) regionally c) PTC recognize its' weaknesses and work together with consumers to deserve its position as a reliable and wanted supplier - the most profitable products are well known - assessment perspectives (consumer, market, PTC as seller and supplier) are have been taken into account in real life	- all essential contact persons from consumers' side (who are in charge of purchases) must be known at PTC - a questionnaire needs to be send to clarify the size of the "market" concerning all products - current supply channels per products need to be clarified as well - more information gathering for category assessment basement (through ERP system, WEB-shop feedback possibility after every purchase (feature built in)

Remarks for step 3. Category assessment: Because of "net surfing purchases" the size of the whole market is unclear.

Step 4. Category targets	PTC present state	PTC target state	Needed action
- target can be: a) amount of consumers (store visits or WEB purchasing) b) increase of sales c) sales: to get to buy products that consumers do not usually buy d) cash flow: to point out products that have quick turnover e) profit: to highlight products	- the whole category's annual budget target is there - also inventory turnover and margin (gross profit) follow-up for the whole category are there - single product based targets (measurements and follow-ups) are missing - customer satisfaction not measured regularly	- target setting has been delivered down to cover at least 10 of the most important products defined together with consumers - when defined together the product portfolios, the purchase share of the consumers is more than 90 % (= increased sales by x %) - product category gives profit	- each product must be taken into deeper investigation: a) margin b) volume (current PTC sales and the whole demand) c) inventory rotation d) the need and meaning for the consumers e) qualitative customer satisfaction measurement based

that have higher sales margin f) financial target: - the number of times a category's inventory rotates during the year - sales margin € f) customer conversion (of people): who buy products in the category anywhere, how many buy them in your store, and how much can you increase that (share of consumers' purchases, refers also to customer loyalty) - satisfaction rating - supplier qualification	- no supplier delivery reliability measurement in use at the moment	that covers fixed and variable costs and leaves something for developing too - the product category inventory rotates at least 4 times a year - continuous customer satisfaction measurement (target level over 4 in scale 1-5) - supplier delivery reliability over 95 % compared to promised delivery time	either on a survey such as an exit interview or integrated to WEB-shop or other separate measurement method - supplier delivery reliability control in use
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Remarks for step 4. Category targets: Quite a lot of the needed data is available from PTC's ERP system.

Step 5. Category strategies	PTC present state	PTC target state	Needed action
- the means and plans to achieve short and long term results like focusing on growth and profit or on certain product basket sizes - also goods handling and supplier strategies (see point 4.3.6)	- no detailed, written category strategy at the moment	- well defined Forensic products category strategy - including short and long term target setting and offered product fine-tuning in order to meet consumer's needs - barcodes in use for receiving and handling goods - supplier qualification in use (delivery reliability measurement)	- planning how to proceed step by step to gather the whole package: a) which products to supply (profit aspect + PTC/consumers co-operation) b) which products to keep in stock / which products to sell via commission trade c) WEB-trade updating and highlighting (training, all offered products with needed information and pictures) d) barcode project start up e) regular supplier delivery reliability follow up (ERP report comparing the confirmed delivery date to order intake date)

Remarks for step 5. Category strategies: Because of limited PTC sales units (3) in Finland, well performing WEB-trade is vital.

Step 6. Category tactics	PTC present state	PTC target state	Needed action
<ul style="list-style-type: none"> <li>- time to determine what tactics will be used to deliver the strategy</li> <li>- there should be the best tactical mix to satisfy target consumers in terms of assortment, pricing, shelf/and WEB-shop promotion and merchandising</li> <li>- the set of tactics could include               <ul style="list-style-type: none"> <li>a) promotion of most profitable products, price manipulation with strong price competition products and vice versa with upscale products or with somehow unique products</li> <li>b) elimination of non-profitable items</li> <li>c) clearer product information in joint created demand based assortment</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- so far no specified tactics created</li> <li>- occasionally various steps like continuous e-commerce updating</li> <li>- shop (3) and shelf arrangements have been done such as space allocation</li> </ul>	<ul style="list-style-type: none"> <li>- WEB-shop includes the whole assortment of PTC's Forensic products and the chosen assortment has got joint confirmation from consumers</li> <li>- the assortment must also bring required profit to PTC</li> <li>- over 50 % of Forensic product sales go through WEB-shop</li> <li>- interesting and exiting shops (3*) that draw customers in</li> <li>*PTC has three shops (Kouvola, Espoo, Tampere)</li> </ul>	<ul style="list-style-type: none"> <li>- PTC's Forensic product specialist gets to know all opponents / persons that are responsible for purchases in Forensic products units + plus goes through PTC's WEB-shop with them (training + feed back)</li> <li>- continuous highlighting action of PTC's role in Shops (products, services...)</li> <li>- check product mix: maintain, decrease, increase, change</li> <li>- check pricing: maintain, decrease, increase</li> <li>-&gt; what kind of effect to gross margin / are the leading items priced correctly?</li> <li>-&gt; how aggressively should we price new items?</li> </ul>

Remarks for step 6. Category tactics: With some items PTC is the only supplier, but there is mostly second choice and thus hard price competition. Because of the public procurement function (public tenders), PTC makes normally 2-4 years contracts with the chosen supplier, which means no help for PTC if PTC wants to maintain pricing velocity.

Step 7. Category implementation	PTC present state	PTC target state	Needed action
<ul style="list-style-type: none"> <li>- to implement the category business plan through a specific schedule and list of responsibilities</li> <li>- essential is commitment and consumer orientation</li> <li>- must be defined roles and measurable targets</li> <li>- concentration on               <ul style="list-style-type: none"> <li>a) right consumer groups and there deeper on contact persons</li> <li>b) better consumer satisfaction</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- basic responsible areas has been defined</li> <li>- more detailed responsibilities and targets are only partly in written form</li> <li>- contact persons from consumers' side are partly known</li> </ul>	<ul style="list-style-type: none"> <li>- PTC's forensic product specialist has a firm and clear touch of the</li> <li>- own products</li> <li>- consumers (opponents, ca. 25 persons)</li> <li>- agreed targets</li> <li>- has one file for the whole category feedback</li> </ul>	<ul style="list-style-type: none"> <li>- next steps for the product specialist are               <ul style="list-style-type: none"> <li>a) ERP reports about Forensic products</li> <li>- articles</li> <li>- sales</li> <li>- profits</li> <li>- inventories (rotations included)</li> <li>b) finding out and contacting opponents</li> <li>c) defining the right assortment</li> <li>e) finding out estimates of purchase cycles (product replenishment)</li> <li>f) updating WEB-shop products with e.g. possible price changes</li> </ul> </li> </ul>

Remarks for step 7. Category implementation: To roll out the category management, business plan means a lot of co-operation at PTC, coordination, possible training and commitment to jointly agreed targets.

Step 8. Category review, follow-up and information updating	PTC present state	PTC target state	Needed action
- to measure, monitor and modify the category business plan on a periodic basis	- current target measurements (mainly covering the whole product category) are done on a periodic basis -> financial things	- monthly reporting is in use (score card): a) volumes b) profit c) inventories d) feedback - also the continuous and regular follow up of market place changes, the status of implementation plan, activity summary and next steps implications	- creation of needed follow-up reports - participating regularly in certain opponent meeting (Forensic products technical days once a year) - creation of fixed review formula

#### 6.3.1.1 The role of PTC as a seller of Forensic products

If we want that the customer is at the centre of the category management, PTC is the linchpin. PTC sets the overall tone in terms of the objectives, strategy, tactics and financial goals. Do we want to be perceived as low-price leader, as an upscale purveyor of goods or as something in between? Whatever we decide, the decision has implications for assortments, category role, strategy and tactics.

In order to achieve the benefits of category management as well as the benefits of the whole ECR, there must be right, consumer driven assortment (products), new product launching and promotion (note e.g. WEB-Shop possibilities) and sufficient replenishment.

Generally, the knowledge and visibility of Forensic products will be improved among the customers after implementing of category management elements.



From the point of view of the category definition, category management requires an understanding of how customers buy. Category management, therefore, brings a much stronger marketing orientation to the product management process at PTC.

### 6.3.2 Demand Management

Like mentioned in chapter 5.2 Demand management means that the company must recognize its customers and their needs and as well as the company must act according to those needs. The company's objectives must also come from customers so that those objectives can be reached through effective cost management and other critical functions like time and quality management.

Demand management includes several related activities related to the market: forecasting, customer service, customer order processing, market coordination, and sales support activities.

### 6.3.3 Summary of interviews

The empirical, qualitative analysis was based on an interview material of three essential Police forensic units in Finland (Forensic Units in Helsinki Police Station, Pirkanmaa Police Station and Pohjois-Karjala/Itä-Suomen lääni Police Station). Helsinki and Pirkanmaa Police Stations were chosen because they are the two biggest Police Stations in Finland. Pohjois-Karjala/Itä-Suomen lääni Police Station is an exception concerning Forensic products because that Police Station combines and takes care of the Forensic product purchases for five separate police stations.

The questions asked in interviews and the summary of answers was:

1. At what time of the year you will get certain amount of money ("budget") for the next year's purchases?
  - *final, confirmed amount will be given in February/March/April*
    - o *even though annual, rough estimate will be given already in Autumn*

- *the beginning of the year / first Months will be guessed and trusted that the money will come anyway*
- *the early year purchases are more careful and towards the year end the spending will increase and finally the all given money will be spend 100 % before the year end, often with quite short planning of which products will be purchased.*

2. Do you have / make any purchase plan?

i. If yes,

1. What kind?

a. Divided for periods?

b. Gathered need for certain products?

- *there is no plan / systematic planning for the coming year*
  - *Then also periodical planning is missing*
    - *To some extend the systematic planning is hoped in order to help using the money in best possible way*
  - *Sometimes a special product / products (like some kind of technical equipment) that are in average more expensive will be taken into account when planning money use. Then the needed money will be tried to reserve and keep for certain purpose.*
  - *Pohjois-Karjala/Itä-Suomen lääni Police Station is an exception among 24 forensic units because of coordinating the five forensic units of the five police stations. There is a purchase work group (five members, one of each station) that in October every year has a meeting concerning next year's purchases. They have an idea what to buy in coming year. The purchase timing has not been planned; mostly purchases happen in second half of the year.*

### 3. What was the reason to buy?

*Concerning Forensic products no systematic inventory reporting is used. The forensics investigators or assistants that use and pick products from stock up, notice and report to the purchase persons so that they can fulfil the shelves again.*

*The kept stocks are small, for critical products the stocking amount might cover for 3 - 6 Months need. Certain products are needed all the time. The consumption varies a lot, depending on "customers' activity". Sometimes certain "best before products" will stay a couple of years in stock; sometimes the shelves are empty before the time unit.*

*There might be consumption forecast possibilities (periodical, seasonal) but that kind of activities are not used.*

### 4. Who decided that the product will be bought?

*The chef of the department will finally make the purchase decision. But the impulse comes normally from regular team meetings, investigators or assistants.*

*Often the chosen product is "the same as before". That means proven quality, no extra training needed, and price wise reasonable and easy to buy. The centralized Forensic Police Laboratory does not instruct any more what products to buy. So the world is quite open, for surfing in Google etc. Also local and active offering to use certain product is remarkable. Often the first purchase is important and shows the future way. The wall to change the product is high.*

*There might be risks to use several different Forensic products in the same end use that are not juristic accepted but the risks are not necessary recognized.*

5. What was the reason to buy from PTC?

a. If to select other supplier, why?

*If PTC has been the regular supplier, it will be the purchase place; and most often if the product is available from PTC; even if the price is not necessary the cheapest one at PTC.*

*Why to select an other supplier? Mostly if PTC does not have the needed product. Or there is so quick need that PTC is not supposed to supply in time (public procurement regulations etc.). Sometimes PTC price is so long that the buying address will turn to other places. Or needed product is so cheap and needed amount so small that the purchase will turn to e.g. local importer or merchant instead of PTC. Even if the PTC benefit is admitted that to buy through PTC will save time because no product searching or price comparison is needed.*

6. Was the product Brand decided before hand?

a. If yes, why the Brand was chosen?

*The product or brand was known before the purchase. Actually it does not matter what is the brand. The product must just work; price/quality share must be OK, the product must be easy to use. One essential thing is that proper user instructions are available, even training sometimes.*

7. Did you know the price of the product?

*The price is always known before purchasing or the price scale at least. The well known regular products from regular supplier might make an exception.*

8. How often the product will be bought?

*“Best before” products need careful follow up. Those product stocks are quite limited and need often replenishment informed by investigators and assistants.*

*In the end of the year when it is time for spending the rest of the money (sometimes bigger sums) the more careful thinking would be needed. Then also PTC’s electronic commerce pages should be updated with all needed information and pictures.*

*The package sizes per product have not been a problem, who ever the supplier has been.*

9. Did you get the wanted product?

*Most often no troubles. PTC and the other suppliers have return time like two weeks. If a local supplier, before purchasing it is possible to check the product. From PTC the products are known and it is only an accident if the product is not a right one. From e.g. Google surfing purchasing it is possible to get something that is not usable, especially some totally new products.*

10. Did you notice any campaign or promotion of the product?

*Sometimes a product will be purchased because of brochures, magazine advertising, Emails, phone calls or personal visit. Personal visit means often proper product introduction and even basic training.*

*Then afterwards the buying is also easier when knowing the seller personally.*

## 11. Any wishes or expectations concerning PTC

- a. products
- b. sales
- c. services

- i. What products are the most important PTC should have?

*PTC has the most essential and needed Forensic products. PTC should concentrate on those ones in all means (continuous knowledge and products updating etc.) and leave out general supermarket products that are everywhere available and with very low price. The chosen products should be in a catalogue form (in Intranet, printed version with running updates numbering, what ever...) so that everybody knows what PTC offers.*

*That concentration on the essential products means*

- *coming closer to the customers, getting to know the customers*
  - *knowing well the products*
  - *showing commitment and being flexible*
  - *reacting quickly and giving quick response*
  - *delivering quickly the products*
  - *making electric commerce (WEB-shop) updated with possible user manuals and pictures*
    - + *giving proper training in order to use WEB-shop*
  - *better contact information: names, pictures, product responsibility areas, phone numbers, Emails and the promise of quick reply - the whole package in simple printable version*
- ⇒ *PTC must find its own profile and build a strong and respected position based on that - one source thinking for all essential products for all forensic units*

⇒ *To at least some forensic units PTC competes against national and local correspondent suppliers.*

At any point in time, the actual demand level may be below, equal to, or above the desired demand level. Concerning PTC's Forensic products PTC meets following challenges:

1. *Negative demand.* Some part of the customers dislikes the product and in fact may even pay a price to avoid it. PTC task is to analyze why the consumers dislike the product, and whether personal contacts or promotion can change the consumers' beliefs and attitudes to more positive direction.
2. *No demand.* Target consumers may be uninterested from PTC's offering. PTC's task is to find ways to connect the benefits of PTC's offering and products with the consumers' needs and interest.
3. *Falling demand.* There is even a danger that PTC faces falling demand for one or more of its products. PTC task is to keep records updated and e.g. increase communication.
4. *Irregular demand.* PTC faces demand which varies on a seasonal, daily, or even hour basis, causing problems of idle capacity or overworked capacity or empty stocks or over stocking. PTC challenging task is to forecast demand and maybe also to find ways to influence on demand by active communication with consumers (activate to plan purchases or asking next 6 Months purchase forecast, needs etc.)
5. *Full demand.* PTC often faces full demand (even overfull demand) in the end of the year and naturally is pleased with the amount of business. More convenient (stock control, service aspect) were to maintain demand at its stabile level in the face of the ever-present possibility of changing consumer preferences as much as possible. PTC must anyway keep its quality and continually measure consumer satisfaction to make sure that it is doing a good job.

Demand management for PTC's product category, Forensic products, means that PTC must recognize its customers and their needs and as well as PTC must act according to those needs. PTC's objectives must also come from customers so that those objectives can be reached through effective cost management and other critical functions like time and quality management. The interviews showed that a procedure for demand forecasting and planning is needed, together with the customers. Through a structured dialog (needs for the coming year, possible new requirements, etc.), PTC will understand and plan for what the customers will be buying and translate this into a forecast. To help that task there are old sales records available from ERP system (real demand history, seasonal profiling with isolating spiky demand events, etc.)

For PTC's purchasing function and inventory control, the demand must be relatively stable (Just-in-Time purchasing.). Other important performance supporting functions like delivery managements as such, product replenishment and even the size of ordered amount are also deeply related to demand forecasting and planning.

PTC needs to activate service concept and forecasting functions because of the purchase stream does not automatically flow towards PTC.

## 7 RESULTS AND CONCLUSIONS

The purpose of the thesis was to describe the current state of procurement of the Police Technical Centre and to find ways to develop then controllability and management of procurement operations.

One product area, Forensic products was taken into deeper investigation because that product group is money wise the third biggest and because that product group includes more than 100 products. And because the significant share of customers' purchases do not meet PTC.

The interviews were made in Helsinki, Tampere and Kouvola in October 2009.



The interviews were easy to be carried out because the customers are very open. They told freely how they do purchases now and what PTC could do better so that the purchases would turn to PTC.

There were certain questions and targets in my thesis and through the chosen theories and interviews I got what I wanted: practical tools and enough background information to proceed in the chosen category management path.

## 7.1 Results

According to Gruen&Shah (2000) one of the essential factors in management the co-operation between a supplier and its consumers is category management. That can be seen as a process that means managing product categories as strategic business units and thus achieving better business results and added-value to consumers. Important is to offer the right assortment of products in the right place. The supplier must be the top expert of his products and to be sure that the offered products are the right ones in order to correspond to the demand.

When we evaluate the process model of category management and how it works, according to this study, we can see that identifying and defining the optimal product category and product mix that indicates consumer's wish and need in profitable way for PTC are the basis for utilizing and developing the product category and for creating added-value to the consumers.

ECR and category management offer practical step-by step tools for short term and long term action planning. The whole process, especially the optimal product category, is endless decision process, never ending story.

PTC has done few category management parts to some extend, but this study suggests going carefully through and implementing all 8 steps into action. That means also strong commitment form organization and developing of ERP reporting and follow-up systems.

It seems to be obvious that the procedure improves financial aspects and customer satisfaction.

Demand management - can it be forecasted - is a challenging task. PTC's Forensic product customers operate with budget / budgeted money. Annual amount of money is roughly known even if the final confirmation of the amount for the year comes in February/March in running year. For customers' purchases and PTC's demand it means low early months and high year end. Demand history from ERP-system gives PTC a hint what will be bought and when. The forensic units do not make systematically purchase planning, partly because of their unexpected consumption of different product.

The interviews gave better picture to understand the forensic units' purchase logic. They live more in day-to-day world. The purchasing must be easy, product information clear, product availability good enough, and prices competitive - all natural and demanding things. For PTC as an In-House procurement unit the task is challenging. The customers have been given, what products and when will be bought is only a rough estimate. The current law allows the customers to buy products from other sources too at the same time when PTC must protect its In-House status from contamination meaning that PTC must operate only with the given customers. And at the same time PTC competes against the other sources, having too big product stocks or empty stocks or something there in between. Public procurement law ties PTC's hands, but not the hands of other sources.

## 7.2 Conclusions

ERP and category management give tools for PTC procurement and demand management and could give frames for the forensic units' purchase planning too. That might happen when PTC implementing category management together with the customers. That deeper customer oriented method could change the widely fragmented Forensic product purchases more into PTC direction.

For the future, when implementing category management in real life, the crucial and continuous thing is to find out and keep only the product assortment (shops and E-commerce) that the customers want, and at the same time PTC should manage the wanted offering in profitable way. From category management's point of view that would reveal if the implemented category management process with chosen tools

correspondents with the customers' expectations. This would give PTC a possibility to develop its processes even more to meet customers' needs.

### 7.3 Challenges

Category management implementation means creating and agreeing jointly targets and their measurement (within PTC and within the customers) concerning optimal product mix in a category. Because of the large product assortment and the customers' freedom to buy from other sources, the category management implementation is certainly a challenge - especially interesting would be the results - how well the category management principles and results will come true - increased sales, profitability, inventory rotation, customer satisfaction etc. Or have the chosen tactics been the right ones... All of this so that the synergy between the customer's purchasing behaviour and attitudes towards PTC and PTC's In-house status will be realized in symbiotic way.

This study is a start for ECR and category management evaluation at PTC. The topic has been chosen because it is actual and large and its gives a basis for many new post studies.

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